



Syllabus

- 1. Course name:** Biomaterials
- 2. Course code:** BIMA332765
- 3. Credits:** 3 credits (3:0:6) (3 lecture periods, 0 lab period, 6 self-study periods per week)
- 4. Instructors**
 - Chief lecturer: Assoc. Prof. Dr. Nguyen Thanh Hai
 - Co-lecturers: M.Eng. Tran Dang Khoa

5. Course Requirements

Prerequisite course(s): None

Previous course(s): Advanced Mathematics

6. Course Description

This course aims to provide learners the basic knowledge of material science and its application properties in biomedical field. The course includes the knowledge such as structure, mechanical properties, and biocompatibility. Students can learn the methods of analysis, testing and evaluation of material standards. Finally, there are practical applications in the biomedical field, the prospects and challenges of biomedical materials in medicine.

7. Learning Outcomes (CLOs)

CLOs	Descriptions	ELO(s) /PI(s)	Compe- tency
	<i>On successful completion of this course students will be able to:</i>		
CLO1	Ability to apply knowledge of materials science, especially such as structure, mechanical properties, biocompatibility	ELO1/PI1.2	M
CLO2	Ability to analyze, test and evaluate standards of biomedical materials	ELO7/PI7.1	R
CLO3	Actively participate studying activities in classroom	ELO5/PI5.1	R

8. Content outline

- Introduction to biomedical material properties
- Characteristic of biomedical materials
- The relationship between biology, biochemistry and medicine
- Testing and evaluation of biomedical materials
- Changing properties of materials in the biological environment
- Application of biomedical materials in Medicine
- New materials and testing process
- Prospects of biomedical materials

9. Teaching Methods

- Powerpoint presentation
- Teamwork

10. Assessment(s)

- Grading scale: **10**

– Assessment plan:

No.	Content	CLOs	Competency	Assessment methods	Assessment tools	Weighting %
Formative assessment						50
1	Examining basic problems of applying biomedical material properties	CLO1/PI1.2	2	Multichoice questions	Online/paper sheets	20
2	Representation with powerpoint slides of topics	CLO3/PI5.1	2	Oral	Rubric	30
Summative assessment						50
3	Analysis applications about biomedical materials	CLO2/PI7.1	2	Written	Rubric	50

11. Learning Materials

– Textbook(s):

[1] Biomaterials Science: An Introduction to Materials in Medicine, Ruddy D. Ratner; Allan Hoffman, Frederick Schoen and Jack Lemons

[2] Fundamentals of Materials Science and Engineering, William D. Callister Jr

– References:

[3] Y.C. Fung Biomechanics: Mechanical Properties of Living Tissues, Springer, 1993.

12. General Information

Academic Integrity

All students in this class are subject to HCMUTE's Academic Integrity Policy (<http://sao.hcmute.edu.vn/>) and should acquaint themselves with its content and requirements, including a strict prohibition against plagiarism. Any violations will be reported to the Faculty of Electrical and Electronic Engineering Dean's office.

Flexibility Notice

Any information in this syllabus (other than grading and absence policies) may be subject to change with reasonable advanced notice. Students need to regularly update the information of their registered class.

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13. Approval Date: <dd/mm/yyyy>

14. Endorsement:

Dean	Head of Department	Chief Lecturer
Assoc. Prof. Dr. Nguyen Minh Tam	Assoc. Prof. Dr. Nguyen Thanh Hai	<Full Name>

15. Revision History:

1st Revision: <dd/mm/yyyy>	Lecturer: Head of Department: Assoc. Prof. Dr. Nguyen Thanh Hai
2nd Revision: <dd/mm/yyyy>	Lecturer: Head of Department: